

A PRELIMINARY REVISION OF THE BOMBYCES OF AMERICA NORTH OF MEXICO.

By B. NEUMOEGEN AND HARRISON G. DYAR.

(Continued from page 148.)

Family ARCTIIDÆ.

Synopsis of subfamilies and genera.

- Front tuberculate **Cydosiinæ.**
- No accessory cell **Cydosia.**
- Accessory cell present **Cerathosia.**
- Front not tuberculate.
- Head prominent, tongue moderate or strong.
- Secondaries large and ample, folded, habitus lithosiform . . . **Eubaphinæ.**
- Vein 5 of secondaries faint or absent.
- Primaries long and narrow **Coscinia.**
- Primaries broad, trigonate **Eubaphæ.**
- Vein 5 of secondaries distinct.
- Primaries broad, trigonate **Haploa.**
- Primaries narrow, apices rounded **Utetheisa.**
- Secondaries trigonate, often disproportionately small; primaries
often pointed at apex **Phægopterina.**
- Vein 8 of secondaries present.
- Veins 7—10 of primaries stalked.
- Primaries produced at apices, secondaries subcaudate . . . **Euverna.**
- Primaries broad, secondaries proportionate **Pareuchætæ.**
- Vein 10 of primaries from subcostal on cell.
- Primaries broad, secondaries proportionate **Cycnia.**
- Primaries narrow, produced at apices, secondaries smaller.
- Vein 8 of secondaries distinct, but not long **Halisidota.**
- Vein 8 very short, spur like **Aemilia.**
- Vein 8 of secondaries wanting.
- Vein 5 of secondaries present.
- Vein 10 of primaries from the subcostal. **Eucereon.**
- Veins 7—10 on a stalk **Zatrephes.**
- Vein 5 of secondaries wanting **Eupseudosoma.**
- Head more or less retracted, tongue weak or small **Arctiinæ.**
- Vein 8 of secondaries wanting **Euerythra.**
- Vein 8 present.
- Vein 7—10 of primaries stalked from apex of cell.
- Median spurs of hind tibiæ wanting.
- Anterior tibiæ unarmed.
- Antennæ of ♂ simple **Ecpantheria.**
- Antennæ of ♂ bipectinated **Leptarctia.**
- Anterior tibiæ armed at tip.
- Armature a stout curved spine; wings subdiaphanous
blackish **Alexicles.**

Armature a long curved spine, wings white	Seirarctia.
Armature a short spine on each side of tip	Estigmene.
Armature a small spur; ♀ antennæ simple	Hyphantria.
Median spurs of hind tibiæ present.	
Antennæ of ♂ simple.	
Vestiture of thorax scaly, appressed	Arachnis.
Vestiture hairy, short, erect.	
Apex of primaries acuminate	Pyrharctia.
Apex of primaries square	Phragmatobia.
Antennæ of ♂ pectinate.	
Wings moderate, size medium.	
Ocelli close to margin of eye	Spilosoma.
Ocelli distant from margin.	
Front narrowed above and below	Elpis.
Front square, not narrowed	Neoarctia.
Wings broad, size large	Platarctia.
Vein 10 from subcostal on cell.	
Accessory cell wanting.	
Wings broad, size large	Arctia.
Wings moderate, smaller	Eyprepia.
Wings elongate, size very small	Kodiosoma.
Accessory cell present.	
Spurs of posterior tibiæ long.	
Size small; body rather slender	Parasemia.
Size large; body more robust	Hypercompa.
Spurs of posterior tibiæ very short	Ectypia.

Subfamily **Cydosiinæ.**

Genus **Cydosia** *Westwood.*

1841—WESTWOOD, Jardine Nat. Lib., Vol. XXXVII, p. 193.

1883—SMITH, Proc. U. S. Nat. Mus., Vol. XI, p. 187.

C. nobilitella *Cramer.*

1782—CRAMER, Pap. Exot., Vol. III, pl. 264, fig. G.

imitella, Stretch.

1873—STRETCH, Zyg. and Bomb. N. A., Vol. I, p. 163.

var. **aurivitta** *Grote & Robinson.*

1869—GROTE & ROBINSON, Trans. Am. Ent. Soc., Vol. II, p. 186

Brownish black with a blue reflection, secondaries paler. End of abdomen ochereous brown in ♂. Primaries crossed by two golden brown bands, the outer arcuate opposite the cell, and a subquadrate golden brown discal spot. Between these markings are a series of large rounded white spots in four or five rows, two or three spots in a row. These may be entirely absent (*var. aurivitta*). Expanse, 20—32 mm.

Habitat, Cuba, Mexico, Texas.

Genus **Cerathosia** *Smith.*

1887—SMITH, Ent. Amer., Vol. III, p. 79.

C. tricolor *Smith.*

1887—SMITH, Ent. Amer., Vol. III, p. 79.

Thorax and primaries silky white with many black dots, not forming distinct rows except at outer margin of primaries where they form an outer irregular subterminal and terminal one. Abdomen and secondaries immaculate, pale straw yellow. Expanse, 25 mm.

Habitat, Texas.

Subfamily **Eubaphinæ.**

Genus **Coscinia** *Hübner*

1822—HÜBNER, Verz. bek. Schmett., p. 169.

Spiris Hübner.

1822—HÜBNER, Verz. bek. Schmett., p. 169.

Eulepis Curtis.

1823—CURTIS, Brit. Ent., Vol. II, pl. 50.

Emydia Boisduval.

1829—BOISDUVAL, Ind. Meth. p. 39.

C. ampla *Grote.*

1878—GROTE, Can. Ent., Vol. X, p. 232.

Fore wings white above, secondaries and underside pale gray. Costa and terminal line black, the latter interrupted by the veins. Two small black spots at end of cell, one in centre of cell, and three more near base forming a triangle: some of these occasionally faint or absent. Secondaries with terminal black line, immaculate. Fringe white. Expanse, 32 mm.

Habitat, Arizona.

Genus **Eubaphe** *Hübner.*

1823—HÜBNER, Zutr. Ex Schmett., Vol. II, p. 9.

Crocota Hübn.

1823—HÜBNER, Zutr. Ex Schmett., Vol. II, p. 28.

Holomelina Herrich-Schäffer.

1855—HERRICH-SCHÄFFER, Ausser. Schmett., Vol. I, p. 17

Synopsis of species.

Secondaries with a very broad, brownish black unbroken marginal border.

Fore wings brownish black	laeta.
Fore wings leaden gray	intermedia.
Fore wings fawn color	ostenta.

Secondaries with a narrow or broken blackish border, often faint or entirely absent.

- Fore wings pale stone color, dusted with red **costata.**
 Fore wings brownish tawny, unspotted, sometimes suffused with black.
 Hind wings red **opella.**
 Hind wings black *var* **nigricans.**
 Fore wings varying from deep chocolate brown to dull ochre yellow,
 often with a darker submarginal band.
 Broad winged, fragile; expanse, 25—30 mm.; marks slight.
 Secondaries immaculate **immaculata.**
 Secondaries with two or three dusky spots *var.* **trimaculosa.**
 Narrower winged; expanse, 16—25 mm.; often heavily
 marked.
 Wings unspotted.
 Fore wings brownish **aurantiaca.**
 Fore wings ochraceous.
 Of normal size *var.* **rubicundaria.**
 Size very small (16 mm.) *var.* **diminutiva.**
 Hind wings spotted with blackish.
 Fore wings without white spots.
 A few marginal black spots on hind wings *var.* **ferruginosa.**
 A continuous black band *var.* **brevicornis.**
 Fore wings with white spots *var.* **quinaria.**

E. laeta *Guérin.*

1839—44—GUÉRIN, Icon. R. Anim. Ins., p. 519.

tratatii Grote.

1865—GROTE, Proc. Ent. Soc. Phil., Vol. IV., p. 322.

rubropicta Packard.

1887—PACKARD, Ent. Amer., Vol. III, p. 52.

Brownish black, collar, abdomen and basal two-thirds of
 secondaries brick red. Expanse, 18—25 mm.

Habitat, Atlantic States to Texas.

E. intermedia *Graef.*

1887—GRAEF, Ent. Amer., Vol. III, p. 42.

var. **parvula** *Neumoegen & Dyar.*

1893—NEUMOEGEN & DYAR, Ent. News., Vol. IV, p. 140.

Thorax and fore wings slate gray, collar and basal part of
 secondaries bright red; abdomen and outer margin of secondaries
 black. This border varies in width from two thirds the width of
 wing (typical) to one third or less (*var. parvula*). Expanse
 22 mm.

Habitat, Colorado to Texas.

E. ostenta *Hy. Edwards.*

1881—HY. EDWARDS, Papilio, Vol. I, p. 12.

Primaries and thorax brownish ochraceous; abdomen black above, red on the sides; secondaries red at the base with an outer black border with irregular edge. This border extends along outer and anal margins being very broad opposite anal angle. Expanse, 30 mm.

Habitat, Arizona.

E. costata *Stretch*.

1885—STRETCH, Ent. Amer., Vol. I, p. 103.

opelloides Graef.

1887—GRAEF, Ent. Amer., Vol. III, p. 42.

Thorax pale stone color, collar narrowly edged with red; abdomen red. Primaries pale stone color, dusted with red scales which are most conspicuous, along costa and on discal cross-vein.

Secondaries pale reddish. Expanse, 28 mm.

Habitat, Texas [Stretch].

E. opella *Grote*.

1863—GROTE, Proc. Ent. Soc., Phil., Vol. I, p. 345.

var. nigricans *Reakirt*.

1864—REAKIRT, Proc. Ent. Soc., Phil., Vol. II, p. 371.

nigrifera Walker.

1865—WALKER, Cat. Brit. Mus., pt. XXXII, p. 499.

obscura Stretch.

1885—STRETCH, Ent. Amer., Vol. I, p. 103.

Brownish tawny, more or less shaded with black. Secondaries reddish with discal spot, or entirely blackish. In the *var. nigricans*, the whole insect is suffused with black. Expanse, 30 mm.

Habitat, Atlantic States.

E. immaculata *Reakirt*.

1864—REAKIRT, Proc. Ent. Soc., Phil., Vol. II, p. 372.

var. trimaculosa *Reakirt*.

1864—REAKIRT, Proc. Ent. Soc., Phil., Vol. II, p. 372.

Fore wings rose color, shaded with brownish at base, subterminally and in a discal spot; or the brownish tint may extend nearly evenly over the whole wing. Sometimes a faint, round, whitish spot in the interspace below origin of vein 2. Secondaries rosy, immaculate, or with a submarginal row of three dusky spots, the two nearest anal angle connected. Expanse, 25—30 mm.

Habitat, Northern Atlantic States.

E. aurantiaca *Hübner*.

1823—HÜBNER, Zutr. Ex Schmett., Vol. II, n. 206.

var. rubicundaria *Hübner*.

1823—HÜBNER, Zutr. Ex Schmett., Vol. II, n. 256.

rosa French.

1890—FRENCH, Can. Ent., Vol. XXII, p. 133.

var. diminutiva *Graef*.

1887—GRAEF, Ent. Amer., Vol. III, p. 42.

var. ferruginosa *Walker*.

1854—WALKER, Cat. Brit. Mus., Vol. II, p. 535.

var. brevicornis *Walker*.

1854—WALKER, Cat. Brit. Mus., Vol. II, p. 536.

belfragei Stretch.

1885—STRETCH, Ent. Amer., Vol. I, p. 103.

var. quinaria *Grote*.

1863—GROTE, Proc. Ent. Soc., Phil., Vol. II, p. 30.

choriona Reakirt.

1864—REAKIRT, Proc. Ent. Soc., Phil., Vol. II, p. 371.

bimaculata Saunders

1869—SAUNDERS, Can. Ent., Vol. II, p. 5.

Fore wings chocolate brown to yellowish fawn color, immaculate or indistinctly shaded with transverse brown bands, with obscure discal dot, and occasionally one or more large whitish spots (*var. quinaria*). Secondaries reddish, or rosy red, immaculate or with a rather broad outer blackish border, and discal dot or the border may be broken up into spots. Expanse, 20—28 mm; of *var. diminutiva* 16 mm.

Habitat, Atlantic States to Rocky Mountains and Texas.

Genus Haploa *Hübner*.

1822—HÜBNER, Verz. bek. Schmett., p. 182.

Synopsis of species.

Secondaries yellow.

Fore wings marked with an incomplete brown border.

A half band from internal margin before anal angle, pointing upward

Several complete slender bands **clymene.**

Fore wings white **colona.**

Secondaries white. *var. conscita.*

Fore wings with brown marks.

Wings crossed by several distinct bands, which may be more or less obsolete.

The most distinct band an oblique one from below apex to outer quarter of inner margin.

Besides this two or three other transverse bands **lecontei.**

Only the oblique band complete *var.* **confinis.**

Oblique band broken *var.* **militaris.**

The most distinct band a reversed oblique one from about middle of costa to internal angle.

This band forming about a right angle with the costal stripe **contigua.**

Forming an oblique angle with costal stripe and supplemented by other bands **reversa.**

Wings divided into eight to ten rounded spots by confused brown bands, the basal spots sometimes confluent **confusa.**

Fore wings white.

Size moderate, wings thickly scaled [see *lecontei* and *reversa*.]

Small and more fragile **vestalis.**

H. clymene *Brown.*

1776—BROWN, III. Zool., p. 96.

interrupto-marginata Beauvois.

1824—BEAUVOIS, In. Afr. and Amer., p. 265.

comma Walker.

1855—WALKER, Cat. Brit. Mus., Vol. III, p. 652.

Fore wings yellowish white, a dark brown stripe on costa from base nearly to apex; another on outer margin widest centrally, a third along inner margin, sending up a rounded projection opposite end of cell. Secondaries orange ochraceous with a black spot near anal angle. Head ochreous, thorax yellowish white, abdomen ochreous, a broad brown dorsal band on thorax and abdomen. Expanse, 45 mm.

Habitat, Atlantic States.

H. colona *Hübner.*

1804—HÜBNER, Eur. Schmett., Vol. II, fig. 135.

|| *clymene* Esper.

1786—ESPER, Schmett., Vol. IV, p. 10.

carolina Harris.

1841—HARRIS, Rep. Ins. Mass., p. 243.

var. **conscita** *Walker.*

1865—WALKER, Cat. Brit. Mus., pt. XXXII, p. 377.

lactata Smith.

1887—SMITH, Ent. Amer., Vol. III, p. 25.

Marked like *clymene* except that there is no projection from the band on inner margin, and there are the following additional bands:—a brown band from inner third of costa to above internal angle; another from near middle of costa to below internal angle crossing the former. A third from above the junction of the first

to just below apex. This latter band is projected toward costa and outer margin forming sometimes a fourth band from outer fourth of costa to middle of outer margin. These bands may be more or less absent, and in the var. *conscita* the wings are immaculate. Expanse, 55 mm.

Habitat, Southern Atlantic States to Texas.

H. lecontei *Guérin*.

1829—44—GUÉRIN, Icon. R. An. Ins., p. 517.

leucomelas Herrich-Schäffer.

1858—HERRICH-SCHAEFFER, Ausser. Schmett., Vol. I, fig. 431.

var. **confinis** *Walker*.

1855—WALKER, Cat. Brit. Mus., Vol. III, p. 651.

var. **militaris** *Harris*.

1841—HARRIS, Rep. Ins. Mass., p. 243.

var. **fulvicosta** *Clemens*.*

1861—CLEMENS, Proc. Acad. Sci., Phil., 1860, p. 536.

White; head ochereous, body with a more or less well defined dorsal brown stripe. Besides the usual brown border, the fore wings have an oblique stripe from just below apex to outer fourth of inner margin, and three transverse equidistant bands. The two outer from costa to the stripe, the basal one to internal margin. In the less distinctly spotted forms these bands disappear, the oblique band and finally the border also, leaving the wing white with ochereous costal margin (var. *fulvicosta*). Expanse, 45 mm.

Habitat, Atlantic States westward.

H. contigua *Walker*.

1855—WALKER, Cat. Brit. Mus., pt. III, p. 651.

In this form the transverse bands consist of two, an inner oblique from internal angle to near middle of costa, and an outer band from just below apex, joining the inner band near its middle and running nearly parallel to the costa. In less well marked forms, the outer band disappears first.

Habitat, Atlantic States.

* This name evidently applies to no natural species. Both *lecontei* and *reversa* and perhaps also *contigua* produce forms without any black marks, which are indistinguishable by maculation. Since the name *fulvicosta* covers portions of two or more species, we propose to restrict it to the white variety of *lecontei*, and suggest a new name for the corresponding form of *reversa*.

H. reversa *Stretch*.

1885—STRETCH, Ent. Amer., Vol. I, p. 104.

suffusa Smith.

1887—SMITH, Ent. Amer., Vol. III, p. 25.

var. **duplicata** *Neumögen & Dyar*.

White, marked like *colona*. The brown markings disappear as in that species, leaving an immaculate white form (var. *duplicata*).

Habitat, Southern States

H. confusa *Lyman*.

1887—LYMAN, Can. Ent., Vol. XIX, p. 185.

White, the body parts normally marked. Primaries marked as in *lecontei* but confused by an additional band (as in *reversa*) which runs from the internal angle upward and inward, and tends to divide the median white space so that the wing appears brown with six or seven rounded white spots. The disappearance of the bands takes place as in *lecontei*, from the base outward; but the oblique band is not left complete, but as a sharply angulated line from inner margin to apex, bent at right angles at its lower third and joined to the costa by the one or two outer transverse bands. Expanse, 35—40 mm.

Habitat, Northern Atlantic States, New York to Canada

H. vestalis *Packard*.

1864—PACKARD, Proc. Ent. Soc., Phil., Vol. III, p. 105.

1887—SMITH, Proc. U. S. Nat. Mus. p. 351.

Head very pale yellow, antennæ very pale brown. Thorax and abdomen white, immaculate, legs pale fulvous. Primaries white, usually immaculate, often with the costal and outer margin a little dusky. Secondaries and under side pure white. Expanse, 33—37 mm.

Habitat, Northern Atlantic States westward. [Smith].

Genus **Utetheisa** *Hübner*.

1822—HÜBNER, Verz. bek. Schmett., p. 168.

Deiopeia Stephens.

1829—STEPHENS, Ill. Brit. Ent., Haust., Vol. II, p. 92.

Synopsis of species.

Transverse bands of primaries orange ochraceous.

Bands complete, secondaries pink **bella**.

Bands indistinct or absent except on costal edge.

Secondaries red var. **hybrida**.

Secondaries white var. **terminalis**.

Transverse bands deep rose red.

Bands complete, secondaries pink or partly so . . .	venusta
Bands absent except on costal edge, secondaries white . . .	ornatrix

U. bella *Linnaeus*.

1758—LINNAEUS, Syst. Nat., Vol. 1, p. 534.

var. hybrida *Butler*.

1877—BUTLER, Trans. Ent. Soc., London, p. 321.

intermedia *Butler*.

1877—BUTLER, Trans. Ent. Soc., London, p. 361.

✓ *var. terminalis* *Neumoegen & Dyar*.

White, a black spot on vertex of head, two on collar and three rows on thorax. Primaries white with five transverse orange colored bands, the two outer connected by an oblique band. Alternating with these are six rows of black spots and a terminal more compact row. Secondaries rose red or pink with an outer black border, a spot near anal angle confluent with it and a subapical oblique band. Expanse, 40 mm.

Habitat, Atlantic States.

The *var. terminalis* differs in having no pink on secondaries; white with a black border. On primaries the orange bands are indicated on costa and slightly near internal margin and subterminally. Black dots present only on costa, base and subterminally and terminally.

U. venusta *Dalman*.

1823—DALMAN, Anal. Ent., p. 28.

speciosa *Walker*.

1854—WALKER, Cat. Brit. Mus., pt. II, p. 568.

Like *U. bella* but the bands rose red instead of orange. One specimen has an orange tint.

Habitat, West Indies.

U. ornatrix *Linnaeus*.

1758—LINNAEUS, Syst. Nat., (3) no . . .

Bands represented by straight, even, narrow lines on costa (not shades as in *var. terminalis*), subterminal red band present. Black dots on costa, base, subterminally and terminally exactly as in *var. terminalis*. Secondaries white, with black border variable.

Habitat, Texas to Brazil, West Indies.

Subfamily **Phægopterinæ.**

Genus **Euverna** *Nemogen & Dyar.*

1893—NEMOGEN & DYAR, Ent. News, Vol. IV, p. 141

E. clio *Packard.*

1864—PACKARD, Proc. Ent. Soc., Phil., Vol. III, p. 120.

White, veins of primaries partly lined with black. Thorax with three black streaks. Collar and patagia with a buff line. Abdomen ocherous above, with dorsal and lateral small black spots. Expanse, 50 mm.

Habitat, Colorado, Arizona, Southern California.

Genus **Pareuchaetes** *Grote.*

1865—GROTE, Proc. Ent. Soc., Phil., Vol. V, p. 245.

P. cadaverosa *Grote.*

1865—GROTE, Proc. Ent. Soc., Phil., Vol. V, p. 245.

Pale ocherous, immaculate, secondaries paler, abdomen dark ocherous with small dorsal black spots. Expanse, 25 mm.

Habitat, Cuba, Florida.

Genus **Cycnia** *Hübner.*

1818—HÜBNER, Zutr. Ex Schmett., V. I, p. 7.

Euchaetes Harris.

1841—HARRIS, Ins. Mass. p. 257.

Tanada Walker.

1856—WALKER, Cat. Brit. Mus., pt. VII, p. 1745.

Pygarctia Grote.

1871—GROTE, Can. Ent., Vol. III, p. 124.

✓ *Synopsis of species.*

An oblique, pale, contrasting stripe from back of head to base of fore wing; sexes usually dissimilar.

Abdomen banded **zonalis.**

Abdomen spotted.

Secondaries of ♂ translucent centrally **scepsiformis.**

Secondaries of ♀ opaque **albicosta.**

No such contrasting stripe; sexes similar.

Costa and internal margin striped.

Stripes red **spraguei.**

Stripes yellow.

Wings dark slate gray **abdominalis.**

Wings very pale gray **vivida.**

Costa only striped.

Wings more or less slate color **eglenensis.**

Wings white.

Costal stripe extending nearly to apex **tenera.**

- Costal stripe short, at base only.
 Size small (less than 35 mm.) *var. pudens.*
 Size larger (45 mm. or more) *race. sciurus.*
- Wings unstriped.
 Wings entirely white.
 Abdomen yellow *oregonensis.*
 Abdomen red.
 Vertex of head white *elegans.*
 Vertex of head red *var. roseicapitis.*
- Wings slate gray or brown.
 Abdomen yellow] *egle.*
 Abdomen red.
 Hind wings unicolorous.
 Fore wings pale stone color *murina.*
 Fore wings dull white *bolteri.*
 Hind wings with a pink patch at internal angle . . . *perlevis.*

C. zonalis *Grote.*

1882—GROTE, Papilio, Vol. II, p. 131.

Blackish gray, costa ocherous, with spot on patagia, collar and vertex of head (forming an oblique band) continuing the stripes, that on head pinkish. Abdomen banded with red and black above, anal tuft white. The ♂ is unknown and is probably very dissimilar to the ♀.

Habitat, Arizona.

C. scepisiformis *Graef.**

1887—GRAEF, Ent. Amer., Vol. III, p. 43.

♂ Dark blackish gray, the secondaries transparent from the base to middle of wing. Collar slightly scaled with crimson; from this along shoulder to beneath base of primaries a band of white. Abdomen bright crimson with black dorsal and lateral spots. Expanse, 28 mm. ♀ Unknown.

Habitat, Texas.

C. albicosta *Walker.*

1855—WALKER, Cat. Brit. Mus., pt. III, p. 630.

1892—KIRBY, Cat. Lep. Het., Vol. I, p. 206.

fumidus Hy. Edwards.

1884—HY. EDWARDS, Pap., Vol. IV, p. 61.

Blackish gray, color of *zonalis*; an oblique band on prothorax in both sexes, and costa of primaries in ♀ only, white. Abdomen red above with dorsal and lateral black spots; anal tuft white in ♀ only.

Habitat, Mexico.

* Mr. Beutenmüller suggests to us that this may be *C. albicosta* when worn by flight.

C. spraguei *Grote*.

1875—GROTE, Can. Ent., Vol. VII, p. 290.

conspicua Neumoegen.

1890—NEUMOEGEN, Ent. Amer., Vol. VI, p. 177.

Fore wings pale stone color, not contrasting with the almost white secondaries. Collar, edges of patagia, abdomen, costa and internal margin of primaries crimson. Abdomen with minute dorsal black dots. Expanse, 28 mm.

Habitat, Colorado.

C. abdominalis *Grote*.

1871—GROTE, Can. Ent., Vol. III, p. 124.

Dark slate gray on both wings, collar, edges of patagia, costa and internal margin of primaries ochereous yellow, abdomen red with small dorsal black spots. Expanse, 35—45 mm.

Habitat, Florida.

C. vivida *Grote*.

1882—GROTE, Papilio, Vol. II, p. 131.

Very pale slate gray, color of *spraguei* from which this species differs only in that the costa and internal margin of primaries are pale yellow instead of red. Body parts colored with red as in *spraguei*. Expanse, 33 mm.

Habitat, Texas.

C. eglenensis *Clemens*.

1861—CLEMENS, Proc. Acad. Sci., Phil., 1860, p. 533.

inopinatus Hy. Edwards.

1882—HY. EDWARDS, Pap., Vol. II, p. 13.

White with lead color tinge, to mouse color, costal margin buff for the basal half. Abdomen buff with dorsal and lateral row of black spots. Expanse, 30—32 mm.

Habitat, Atlantic States.

C. tenera *Hübner*.

1818—HÜBNER, Zutr. Ex Schmett., Vol. I, p. 7.

collaris Fitch.

1856—FITCH, Rep. Ins., N. Y., Vol. III, p. 265.

antica Walker.

1856—WALKER, Cat. Brit. Mus., pt. VII, p. 1745.

var. **pudens** *Hy. Edwards*.

1882—HY. EDWARDS, Pap., Vol. II, p. 120.

race sciurus Boisduval.

1869—BOISDUVAL, Ann. Soc. Ent., Belg., Vol. XII, p. 79.

yosemite Hy. Edwards.

1884—HY. EDWARDS, Pap., Vol. III, p. 146.

White; head, collar, anterior part of thorax and costa of primaries nearly to apex, ochereous yellow. A smoky shade in discal cell. Abdomen tinged with ochereous, with dorsal and lateral black spots. Expanse, 28—35 mm.

Habitat, Atlantic States to Texas.

The race *sciurus* is larger, with a buff dash at base of costa.

Habitat, California.

C. oregonensis *Stretch.*

1874—STRETCH, Zyg. and Bomb., N. A., p. 187.

Pale, smoky lead color, the veins white. Head and abdomen, except at tip, ochraceous, with dorsal and lateral rows of black spots. Secondaries and tip of abdomen nearly white. Expanse, 35 mm.

Habitat, Northern Atlantic States and Pacific Northwest.

C. elegans *Stretch.*

1874—STRETCH, Zyg. and Bomb. N. A., p. 189.

✓ *var. roseicapitis* *Neumoegen & Dyar.*

White, head narrowly rosy behind. Abdomen rosy red above with minute blackish dorsal spots. Last segment of abdomen of ♀ tufted with white.

Var. roseicapitis. Upper half of front, and vertex of head, rosy red.

Habitat, California and Arizona.

C. egle *Drury.*

1773—DRURY, Ill. Ex. Ent., Vol. II, pl. 20, fig. 3.

Mouse gray, abdomen and bases of antennæ ochereous, the former with usual black spots, and white tipped in the . Fore wings unicolorous, slightly sprinkled with white scales. Secondaries very slightly paler. Expanse, 35 mm.

Habitat, Atlantic States westward.

C. murina *Stretch.*

1885—STRETCH, Ent. Am., Vol. I, p. 106.

Slate gray, color of egle; collar, edge of patagia very narrowly, and abdomen above, red. Vein at end of cell faintly indicated in yellowish. Expanse, 25 mm.

Habitat, Texas.

C. bolteri *Stretch*.

1855—STRETCH, Ent. Amer., Vol. I, p. 106.

Collar, thorax, and primaries white with faint gray shadings. Secondaries pale slate gray. Abdomen red above with anal tuft of ♀ white. Expanse, 35 mm.

Habitat, Texas.

C. perlevis *Grote*.

1882—GROTE, Pap., Vol. II, p. 131.

Very close to *murina*. The color is a little darker, and the internal third of secondaries at anal margin covered by a rosy pink patch. The abdomen has a series of distinct but small, dorsal, black spots. Expanse, 25 mm.

Habitat, Arizona.

Genus **Halisidota** *Hübner*.

1822—HÜBNER, Verz. bek. Schmettl., p. 170.

Lopheocampa Harris.

1841—HARRIS, Ins. Mass., p. 258.

Theages Walker.

1855—WALKER, Cat. Brit. Mus., pt. III, p. 721.

Euhalesidota Grote.

1865—GROTE, Proc. Ent. Soc., Phil., Vol. V, p. 243.

Synopsis of species.

Thorax black, patagia purplish **strigosa**.

Thorax not black.

Wings thinly scaled, subtranslucent, maculation banded.

Abdomen yellowish.

Maculation of primaries strongly outlined in blackish **interlineata**.

Maculation but feebly outlined **tesselaris**.

Abdomen red **edwardsii**.

Wings opaquely scaled; maculation various.

Maculation transversely banded, confused or obsolete.

Distinctly banded with brown and yellow **maculata**.

Uniform yellow; apex pointed **pura**.

Straw yellow, with confused brown spots **longa**.

Maculation distinctly spotted, the spots corresponding to the intervals between bands.

Thoracic parts largely ocherous.

Spots on primaries ocherous.

Purplish brown shades centrally **minima**.

No shades; finely brown dotted **mixta**.

Spots distinctly whitish **caryæ**.

Thoracic parts white and brown.

Vertex of head and collar brown and whitish **argentata**.

Vertex of head and collar white **ingens**.

Maculation of longitudinal brown lines of the veins on a white ground **ambigua**.

H. strigosa *Walker.*

1585—WALKER, Cat. Brit. Mus., pt. III, p. 615.

laqueata Hy. Edwards.

1887—HY. EDWARDS, Ent. Amer., Vol. II, p. 166.

Thorax black, inner half of patagia and edge of collar pink flesh color. Abdomen deep red above with lateral black spots and last segment black. Wings translucent, primaries blackish brown, streaked with pale pink, in no definite markings, giving a longitudinally strigose appearance. Secondaries colorless, with outer brown border. Expanse, 45 mm.

Habitat, Hayti, Jamaica, Florida.*

H. interlineata *Walker.*

1555—WALKER, Cat. Brit. Mus., Vol. III, p. 739.

lucunda Herrich-Schäffer.

1555—HERRICH-SCHAEFFER, Ausser. Schmett., fig. 285.

cinctipes Grote.

1865—GROTE, Proc. Ent. Soc., Phil., Vol. V, p. 242.

1890—MÖSCHLER, Abhand., Senck., Ges., Vol. XVI, p. 115.

darvisii Hy. Edwards.

1875—HY. EDWARDS, Proc. Cal. Acad. Sci., Vol. V, p. 305.

Brownish ochraceous, marked as in *tessellaris* but the borders of the catenulate maculations very distinct, black, the basal markings confluent with a triangular patch between vein 1 and median. Abdomen dark ochereous above, patagia and collar lined with sea-green. Expanse, 55—60 mm.

Habitat, Brazil, Mexico, Florida, Texas and Arizona.

H. tessellaris *Abbot & Smith.*

1797—ABBOT & SMITH, Lep. Ins., Ga., Vol. II, p. 75.

antiphola Walsh.

1864—WALSH, Proc. Bost. Soc., N. H., Vol. IX, p. 288.

form harrisii *Walsh.*

1864—WALSH, Proc. Ent. Soc., Phil., Vol. III, p. 430.

Pale straw yellow, the abdomen above buff, the patagia lined inwardly with green. Six bands of a darker tint cross the fore wings, the fourth not reaching below median vein. These bands are quadrate-catenulate and neatly lined on each side with brown-black. They vary much in width, examples occurring in which they are almost completely confluent.

The form *harrisii* Walsh does not differ in markings. It is considered to be a distinct species on account of larval differences

* The moth described by Mr. Edwards, was sent to him by Mr. Bruce, who informs me that it came from Florida and not from Texas as mentioned by Mr. Edwards. Edw.

which consist of orange hair pencils; in *tessellaris*, these structures are black. Expanse, 40 mm.

Habitat, Atlantic States westward.

H. edwardsii *Packard*.

1864—PACKARD, Proc. Ent. Soc., Phil., Vol. III, p. 129.

translucida Walker.

1865—WALKER, Cat. Brit. Mus., pt. XXXI, p. 310.

quercus Boisduval.

1869—BOISDUVAL, Ann. Ent. Soc., Belg., Vol. XII, p. 81.

race labecula *Grote*.

1851—GROTE, Papilio, Vol. I, p. 174.

Thorax sordid buff yellow, abdomen red above, often marked with terminal black dorsal patches in the ♀. Fore wings heavily sprinkled with chocolate brown, more or less translucent, often markedly so. Six clay yellow bands cross the wings, slightly waved, the sixth (marginal) often obsolete. In very translucent specimens, the bands are distinct only on costa and internal margin.

Habitat, California.

The race *labecula* differs in having no pink tint on the secondaries, while all the markings are slightly more diffused.

Habitat, Rocky Mountain region.

H. maculata *Harris*.

1841—HARRIS, Ins., Mass., p. 259.

fulvoflava Walker.

1855—WALKER, Cat. Brit. Mus., pt. III, p. 733.

guttifera Herrich-Schäffer.

1855—HERRICH-SCHAEFFER, Ausser. Schmett., fig. 284.

race angulifera *Walker*.

1866—WALKER, Lord's Nat. in Vanev., Vol. II, p. 355.

alni Hy. Edwards.

1877—HY. EDWARDS, Proc. Cal. Acad. Sci., Vol. VII, p. 129.

race agassizii *Packard*.

1864—PACKARD, Proc. Ent. Soc. Phil., Vol. III, p. 128.

californica Walker.

1864—WALKER, Cat. Brit. Mus., pt. XXXI, p. 371.

salicis Boisduval.

1869—BOISDUVAL, Ann. Ent. Soc., Belg., Vol. XII, p. 81.

Head and thorax brownish ochereous, with two diffuse brown bands on the latter. Abdomen and hind wings whitish. Fore wings light yellow with six transverse, deep brown, irregular bands. The second to fourth (from base) are usually more or less confluent, the fifth is often sharply dentate outwardly and the sixth consists of a row of rounded intervenular spots. The markings

are subject to great variation, being sometimes confluent so as to cover most of the wing.

Habitat, Northern Atlantic States westward.

The race *angulifera* does not differ in the imago. The larva when young possesses red tufts instead of black ones as in *maculata*.

Habitat, Sierra Nevada of Cal., Pacific Northwest.

In the race *agassizii*, the color of the insect is a deeper yellow. It corresponds nearly with Ridgway's figure of "maize yellow" (Ridg. Nom. Col. Pl. VI, f. 21.) while the race described above are "straw yellow" (Ridg., Pl. VI, f. 17). The brown marks tend to become suffused by the yellow ground color, often largely disappearing, but leaving a spot in the fourth band at the end of the cell of the normal distinctness. This discal spot is a characteristic feature of *agassizii* and only disappears in very heavily marked specimens. This form differs almost enough to entitle it to specific rank.

Habitat, Coast region of California.

H. pura *Neumagen*.

1882—NEUMÆGEN, Papilio, Vol. II, p. 133.

Bright ochraceous; anterior wings very pointed, long. Secondaries whitish stramineous. On primaries, a brown discal dot and occasionally some faint brown motlings suggesting the markings of *H. maculata*. Expanse, 45 mm.

Habitat, Arizona.

H. longa *Grote*.

1880—GROTE, Can. Ent., Vol. XII, p. 213.

Pale yellowish, with irregular brown dots more or less numerous; along median vein outwardly a brown streak, continued to apex more or less perfectly by two brown spots. Expanse, 45 mm.

Habitat, Florida.

H. minima *Neumagen*.

1882—NEUMÆGEN, Papilio, Vol. III, p. 138.

1892—KIRBY, Cat. Lep. Het., Vol. I, p. 211.

armillata Hy. Edwards.

1884—HY. EDWARDS, Papilio, Vol. IV, p. 76.

Pale ochereous, the spots reduced, partly obsolete, concolorous with ground, and defined by pale brown. Middle of wing, or most of it, overspread with purplish brown. Of the five rows of spots, the basal ones are enlarged, the others small and indistinct on middle of wing. Expanse, 35 mm.

Habitat, Mexico, Arizona.

H. mixta *Neumagen*.

1882—NEUMÄGEN, Papilio, Vol. II, p. 133.

Like *caryæ* but the spots concolorous; defined by pale brown rings, all the space between them filled in thickly with pale brown dots. The oblique brown line as in *caryæ*, but less distinct. Expanse, 40—50 mm.

Habitat, Arizona.

H. caryæ *Harris*.

1841—HARRIS, Ins. Mass., p. 258.

annulifascia WALKER.

1853—WALKER, Cat. Brit. Mus., pt. III, p. 734.

porphyria Herrich-Schäffer.

1855—HERRICH-SCHÄFFER, Ausser. Schmett., fig. 283.

Straw yellow with diffuse brown thoracic marks. Hind wings whitish. Fore wings heavily dotted with deep brown, becoming a shade beyond the cell, and an oblique line from costa near base to above internal margin. Five transverse rows of unequal fairly well rounded spots, the outer three or four rows white and slightly silvery. The third row does not reach below vein 2. Fringe checkered with white at ends of veins. Expanse, 40—50 mm.

Habitat, Atlantic States westward.

H. argentata *Packard*.

1864—PACKARD, Proc. Ent. Soc., Phil., Vol. III, p. 129.

race subalpina *French*.

1890—FRENCH, Can. Ent., Vol. XXII, p. 47.

race sobrina *Stretch*.

1872—STRETCH, Zyg. and Bomb. N. A., Vol. I, p. 135.

Thorax, abdomen and secondaries brownish cream color, the secondaries paler. Borders of patagia, centre of thorax and three marks on collar, dark brown. Primaries dark brown with five somewhat ill defined rows of distinct, rounded, silvery white spots, becoming cream colored on costa, the brown ground dusted with cream color. Discal and apical brown marks on secondaries. Expanse, 45—55 mm.

Habitat, Mts. of California, and Pacific Northwest.

Race *subalpina*. The ground color of fore wings is rather more broken up by pale color.

Habitat, Rocky Mountain region.

Race *sobrina*. The brown ground color is deep and uniform, and the spots smaller than in *argentata*.

Habitat, Coast region of California.

H. ingens Hy. Edwards.

1881—HY. EDWARDS, Papilio, Vol. I, p. 39.

scapularis Stretch.

1885—STRETCH, Ent. Amer., Vol. I, p. 106.

Head, sides and centre of collar, terminal two-thirds of patagia and centre of thorax white. Abdomen ocher yellow above with lateral brown spots. Inner half and outer fourth of base of patagia, and ground color of primaries dark brown. Silvery white spots as in *argentata*, but larger and more confluent, almost the same color on costa as elsewhere. Secondaries whitish with small apical brown spots. Expanse, 55 mm.

Habitat, Rocky Mountain region to Arizona.

H. ambigua Strecker.

1878—STRECKER, Proc. Day. Acad. Sci., Vol. II, p. 274.

bolteri, Hy. Edwards.

1884—HY. EDWARDS, Papilio, Vol. IV, p. 121.

Fore wings light brown, all the interspaces containing white longitudinal streaks; veins brighter brown. Thorax pale brown the patagia and collar edged with darker. Abdomen pale pinkish above. Expanse, 50 mm.

Habitat, Colorado.

Genus **Aemilia** Kirby.

1892—KIRBY, Cat. Lep. Het., Vol. I, p. 218.

|| *Ameles* Walker.

1855—WALKER, Cat. Brit. Mus., pt. III, p. 711.

Synopsis of species.

Abdomen rosy red	roseata.
Abdomen yellow	occidentalis.

A. roseata Walker.

1868—WALKER, Lord's Nat. in Vanc., Vol. II, p. 336.

sanguivenosa Neumegen.

1892—NEUMEGEN, Can. Ent., Vol. XXIV, p. 228.

var. cinnamonea Boisduval.

1868—BOISDUVAL, Ann. Soc. Ent. Belg., Vol. XII, p. 80.

1869—GROTE & ROBINSON, Trans. Am. Ent. Soc., Vol. III, p. 175.

var. significans Hy. Edwards.

1888—HY. EDWARDS, Ent. Amer., Vol. III, p. 182.

Bright red; secondaries whitish subtranslucent, patagia whitish centrally. Primaries brown, veins and margins red. Of the five bands of spots on primaries, the basal ones are yellowish,

the three outer rows whitish, the last one composed of heart shaped spots. Expanse, 35 mm.

Habitat, California and the Pacific Northwest.

var. cinnamomea. "Fore wings bright red with some ill defined areas of yellow towards the base near internal margin. One example from Sonora [Mexico]" [Boisduval].

var. significans. White spots on fore wings ill defined, diffuse, confluent, forming bands which cross the veins, so that the latter are only red in the areas where the brown ground color prevails. One example from New Mexico.

A. occidentalis *French*.

1890—FRENCH, Can. Ent., Vol. XXII, p. 46.

Exactly like *roscata* but ochraceous where that is red.

Habitat, Colorado.

Genus **Eucereon** *Hubner*.

1822?—HÜBNER, Verz. bek. Schmettl., p. 123.

E. carolina *Hv. Edwards*.

1887—HY. EDWARDS, Ent. Amer., Vol. II, p. 160.

Dark brown, abdomen tinged with ochereous. Ground color of primaries sordid whitish, the veins pale brown separating a series of small dark brown spots arranged in five irregular rows, like those in *E. archias*, but smaller. Secondaries hyaline with outer smoky brown border. The species is paler than *archias*.

Habitat, Southern States.

Genus **Zatrephes** *Hubner*.

1822?—HÜBNER, Verz. bek. Schmettl., p. 171.

Z. trigona *Grote*.

1879—GROTE, N. Am. Ent., Vol. I, p. 146.

Thorax lead color, collar and patagia outlined in dull orange; palpi, fore femora and side of collar crimson. Abdomen crimson above with lateral black spots, white below. Fore wings lead color shading into pinkish at internal angle. A large subapical, irregularly tetragonal, hyaline patch, bordered with yellow and black and containing four black dots on the veins. Near base of wing two diffuse yellow patches and a third further out, close to the hyaline patch. Secondaries white, with pink tinge along abdominal margin. Expanse, 36 mm.

Habitat, Colorado, New Mexico.

Genus **Eupseudosoma** *Grote.*

1865—GROTE, Proc. Ent. Soc., Phil., Vol. V, p. 240.

E. floridum *Grote.*

1882—GROTE, Can. Ent., Vol. XIV, p. 187.

immaculata Graef.

1887—GRAEF, Ent. Amer., Vol. III, p. 42.

Silvery white; abdomen bright red above centrally with a dorsal white line. Vertex of head yellowish. This form is probably not specifically distinct from the South American *E. involutum* Sepp.

Habitat, Florida, Cuba.

Subfamily **Arctiinæ.**

Genus **Euerythra** *Harvey.*

1876—HARVEY, Can. Ent., Vol. VIII, p. 5.

Synopsis of species.

A median longitudinal blackish band	phasma.
No median longitudinal blackish band	trimaculata.

E. phasma *Harvey.*

1876—HARVEY, Can. Ent., Vol. VIII, p. 5.

White; abdomen red ringed, a long band of blackish brown from base to middle of outer margin crossed by another from apex to internal margin. A small discal spot, and one near base below longitudinal band. All the marks divided by yellowish veins. Expanse, 28 mm.

Habitat, Texas.

E. trimaculata *Smith.*

1887—SMITH, Proc. U. S. Nat. Mus., Vol. X, p. 336.

White; abdomen red ringed centrally. Three brown marks; two on costa near base and near apex respectively, and one on internal margin near internal angle, all obscurely divided by paler veins. A minute discal dot.

Habitat, Texas.

Genus **Ecpantheria** *Hubner.*

1822—HÜBNER, Verz. bek. Schmett., p. 183.

Synopsis of species.

Size large, secondaries caudate.

With black bordered, white abdominal spots	garzoni.
With black abdominal spots	ocularia.

Basal spots on fore wings confluent *var. confluens.*

Discal area of wings denuded *var. denudata.*

Size smaller, secondaries rounded *permaculata.*

E. garzoni *Oberthur.*

1881—OBERTHÜR, Etudes d'ent., pl. XIII, fig. 3.

sennettii Lintner.

1884—LINTNER, Papilio, Vol. IV, p. 147.

White; the ring like markings on the wings, brown, narrow, well filled with white. On secondaries, a submedian and small marginal row of rings, partly filled in with black. Abdomen dark ocher yellow above, with subdorsal row of white spots edged narrowly with black, the last pair confluent in a U shaped mark. Expanse, 55 mm.

Habitat, Mexico, Texas.

E. oclaria Fabricius.

1775—FABRICIUS, Syst. Ent., p. 564, n. 29.

scribonia Stoll.

1790—STOLL, Suppl. Cram. V., pl. 41, f. 3

1892—KIRBY, Cat. Lep. Het., Vol. I, p. 216.

chryseis Olivier.

1790—OLIVIER, Enc. Meth., Vol. V, p. 58, n. 123.

oculatissima Abbot and Smith.

1797—ABBOT & SMITH, Lep. Ins. Ga., Vol. II, pl. 69.

var. confluens *Oberthur.*

1884—OBERTHÜR, Etudes d'ent., p. 110, t. 17 figs. 3 and 5.

var. denudata *Slosson.*

1888—SLOSSON, Ent. Amer., Vol. III, p. 212.

White, with black rings on thorax and fore wings, those on thorax occasionally filled in with black. Along costa and internal margin, the rings are filled in with bluish white. Abdomen dark ocher above, with dorsal bands of deep shining blue black on the posterior parts of the segments, leaving a row of square ocher dorsal spots narrowly connected with an ocher subdorsal line. A row of black square lateral spots. Expanse, 58—80 mm.

Habitat, Southern Atlantic States to New York.

E. permaculata *Packard.*

1872—PACKARD, Rep. Peab. Acad., Vol. IV, p. 86.

1890—SMITH, Can. Ent., Vol. XXII, p. 179.

reducta Grote.

1878—GROTE, Bull. U. S. Geol. Surv., vol. III, p. 799.

chilensis Oberthur.

1881—OBERTHÜR, Etudes d'Ent., p. 111, pl. XX, fig. 5.

1883—BURMEISTER, An. Mus. B. Aires, Vol. III, p. 39, n. 18.

cæca Strecker.

1885—STECKER, Proc. Acad. N. S. Phil., 1884, p. 283.

White, with somewhat angular black spots instead of rings, but the same in pattern. Abdomen pale ochereous, with dorsal and lateral black spots, the former subconfluent into a broad band becoming smoky brown toward base. Secondaries well rounded, not at all caudate, with indistinct smoky marginal spots. Expanse, 42 mm.

Habitat, Rocky Mountain region west to California, south to Chile.

Genus **Leptarctia** *Stretch*.

1872—STRETCH, *Zyg. and Bomb. N. A.*, p. 118.

L. californiæ *Walker*.

1855—WALKER, *Cat. Brit. Mus.*, pl. III, p. 625.

lena Boisduval.

1869—BOISDUVAL, *Ann. Soc. Ent. Belg.*, Vol. XII, p. 73.

adnata Boisduval.

1869—BOISDUVAL, *Ann. Soc. Ent., Belg.*, Vol. XII, p. 73.

fulvofasciata Butler.

1881—BUTLER, *Ann. Nat. Hist.*, (5) Vol. VIII, p. 313.

wrightii French.

1889—FRENCH, *Can. Ent.*, Vol. XXI, p. 224.

var. **decia** *Boisduval*.

1869—BOISDUVAL, *Ann. Soc. Ent. Belg.*, Vol. XII, p. 72.

boisduvalii Butler.

1881—BUTLER, *Ann. Nat. Hist.* (5) Vol. VIII, p. 313.

latifasciata Butler.

1881—BUTLER, *Ann. Nat. Hist.* (5) Vol. VIII, p. 313.

albifascia French.

1889—FRENCH, *Can. Ent.*, Vol. XXI, p. 223.

occidentalis French.

1889—FRENCH, *Can. Ent.*, Vol. XXI, p. 223.

var. **dimidiata** *Stretch*.

1872—STRETCH, *Zyg. and Bomb. N. A.*, p. 118.

stretchii Butler.

1881—BUTLER, *Ann. Nat. Hist.* (5) Vol. VII, p. 312.

Black, patagia with a yellow line: femora of fore legs red. Primaries black, or grayish black, with three irregular and broken yellowish lines, the outer almost **W**-shaped, these lines are often absent. A whitish basal dash. Secondaries yellow or red (*var. decia*) with marginal black spots, black border, or entirely black (*var. dimidiata*) or black with a median pale yellow or red line. Expanse, 25 mm.

Habitat, Rocky Mountains and Sierra Nevada.

Genus *Alexicles Grote*.

1853—GROTE, Trans. Kansas Ac. Sci., Vol. VIII, p. 46.

1893—DYAR, Can. Ent., Vol. XXV, p. 328.

A. aspersa Grote.

1883—GROTE, Trans. Kansas Ac. Sci., Vol. VIII., p. 46.

Subdiaphanous blackish. Fore wings obscurely clouded with black at base, subterminally and more distinctly, at end of discal cell. Veins, especially on outer half of wing, marked narrowly with white, but interruptedly, giving the appearance of short streaks. Secondaries scarcely paler, with faint discal spot. Posterior margin of eyes and annulations of tarsi reddish. Expanse, 36 mm.

Habitat, New Mexico.

Genus *Seirarctia Packard*.

1864—PACKARD, Proc. Ent. Soc., Phil., Vol. III, p. 119.

S. echo Abbot & Smith.

1797—ABBOT & SMITH, Lep. Ins. Ga., Vol. II, pl. 68.

White, abdomen marked with ocherous with dorsal and lateral black spots centrally. Fore wings white; veins white, but each vein bordered on both sides by a rather broad dark brown band. Secondaries white with traces of the brown markings at margin. Expanse, 55—60 mm.

Habitat, Southern States.

Genus *Estigmene Hübner*.

1822—HÜBNER, Verz. bek. Schmettl., p. 184.

Leucarctia Packard.

1864—PACKARD, Proc. Ent. Soc., Phil., Vol. III, p. 124.

Synopsis of species.

Fore wings black spotted	acræa.
Fore wings white, immaculate	albida.

E. acræa Drury.

1773—DRURY, Ill. Ex. Ent., Vol. I, pl. 3, fig. 2.

caprotina Drury.

1773—DRURY, Ill. Ex. Ent., Vol. I, pl. 3, fig. 3.

menthastrina Marltn.

1797—MARTYN, Psyche, pl. 15, fig. 38.

pseudermanica Harris.

1841—HARRIS, Rep. Ins. Inj. Veg., p. 251.

californica Packard.

1864—PACKARD, Proc. Ent. Soc., Phil. Vol. III, p. 121.

packardii Schaupp.

1882—SCHAUPP, Ch. list Brook. Ent. Soc., p. 8.

White, antennæ black. Fore wings white with a number of black spots which form about six irregular rows. Secondaries and whole under side in ♂ ocher yellow, white in ♀ with a few submarginal and discal black spots. Abdomen with a central ocher yellow band and dorsal and lateral black spots. Expanse, 50—60 mm.

Habitat, North America.

E. albida *Stretch*.

1874—STRETCH, *Zyg. and Bomb. N. A.*, Vol. I, p. 203

White, antennæ black, wings immaculate; secondaries with traces of black spots. Abdomen clear yellow ocher above, except the apical segment and the basal hairs. Expanse, 30 mm.

Habitat, California to Mexico.

Genus **Hyphantria** *Harris*.

1841—HARRIS, *Ins. Mass.*, p. 255.

H. cunea *Drury*.

1773—DRURY, *Ill. Ex. Ent.*, Vol. I, pl. 15, fig. 4.

punctatissima Abbot and Smith.

1797—ABBOT & SMITH, *Lep. Ins., Ga.*, Vol. II, pl. 10.

congrua Walker.

1855—WALKER, *Cat. Brit. Mus.*, Vol. III, p. 669.

punctata Fitch.

1856—FITCH, *Rep. Ins., N. Y.*, Vol. III, p. 387.

pallida Packard.

1864—PACKARD, *Proc. Ent. Soc., Phil.*, Vol. III, p. 118.

1890—SKINNER, *Ent. News*, Vol. I, p. 51.

var. **budea** *Hübner*.

1823—HÜBNER, *Zutr. Ex. Schmett.*, Vol. II, ff. 387-8.

textor Harris.

1841—HARRIS, *Rep. Ins. Mass.*, p. 255.

candida Walker.

1864—WALKER, *Cat. Brit. Mus.*, pt. XXXI, p. 291.

Entirely white, fore femora yellow. In the form *cunea*, there are many black spots on primaries forming about six rows when fully present. Expanse, 20—30 mm.

Habitat, North America, throughout.

Genus **Arachnis** *Geyer*.

1837—GEYER, *Zutr. Ex. Schmett.*, Vol. V, p. 28.

Synopsis of species.

Secondaries red.

Primaries red below **aulea.**

Primaries yellow below **picta.**

Secondaries yellow **zuni.**

E. aulea *Geyer*.

1837—GEYER, Zutr. Ex. Schmett., Vol. V, ff. 913-4.

incarnata Walker.

1855—WALKER, Cat. Brit. Mus., pt. III, p. 690.

Transverse, serpentine, gray, black-bordered lines as in *picta* on a white ground; but more produced longitudinally so as to appear oblique, leaving but little of the ground color visible. Secondaries red in both sexes the three bands dark gray, partly confluent.

Habitat, Honduras, Mexico.

A. picta *Packard*.

1864—PACKARD, Proc. Ent. Soc., Phil., Vol. III, p. 126.

race **citra** *Neumegen & Dyar*.

1893—NEUMEGEN & DYAR, Ent. News, Vol. IV, p. 140.

Primaries white with six serpentine, cinereous, black-bordered bands, confused at the outer margin; on the under side of primaries the ground color becomes yellow at basal two thirds. Secondaries red, with three irregular cinereous bands, broken in the ♂. Abdomen red with dorsal and lateral gray spots: white below. Expanse, 45—55 mm.

Habitat, Southern California to Mexico.

In the race *citra*, the ground color of primaries is yellowish.

Habitat, Colorado.

A. zuni *Neumegen*.

1890—NEUMEGEN, Ent. Amer., Vol. VI, p. 173.

White, with six gray serpentine bands partly broken, but confluent in a line from base to apex, their character as bands largely obscured. Secondaries white, yellow on costa and internal margin, with irregular gray spots. Abdomen yellow, with gray dorsal and lateral bands. Expanse, 50 mm.

Habitat, New Mexico.

Genus **Pyrrharctia** *Packard*.

1864—PACKARD, Proc. Ent. Soc., Phil., Vol. III, p. 120.

P. isabella *Abbot & Smith*.

1797—ABBOT & SMITH, Lep. Ins. Ga., Vol. II, pl. 68.

californica Packard.

1864—PACKARD, Proc. Ent. Soc., Phil., Vol. III, p. 121.

Of a peculiar brownish yellow, abdomen with dorsal and lateral black spots. On primaries are some diffuse black dots, defined in about three faint dusky bands. Secondaries whitish

in ♂, pinkish in ♀ with discal and submarginal black spots.
Expanse, 55 mm.

Habitat, North America.

Genus **Phragmatobia** *Stephens*.

1828—STEPHENS, Ill. Brit. Ent., Haust., Vol. II, p. 73.

Synopsis of species.

Expanse, 30—35 mm.	fuliginosa.
Expanse, 40 mm.	assimilans.

P. fuliginosa *Linnaeus*.

1758—LINNAEUS, Syst. Nat., Vol. I, p. 509.

rubricosa Harris.

1841—HARRIS, Ins. Mass., p. 253

Dark brown, subdiaphanous with two black discal dots on primaries. Secondaries reddish with black discal dots and outer border, or entirely black. Abdomen reddish, or red with dorsal and lateral black spots. Expanse, 30—35 mm.

Habitat, Northern Atlantic States, north and west. Europe, western Asia.

P. assimilans *Walker*.

1855—WALKER, Cat. Brit. Mus., pt. III, p. 535.

var. franconia *Slosson*.

1891—SLOSSON, Ent. News, Vol. II, p. p. 41.

Larger than *fuliginosa* and more tending to reddish tints on primaries; wings more opaque. In the *var. franconia* a distinct black median band crosses the fore wing. Expanse, 40 mm.

Habitat, Mountains of New York and New England northward.

(TO BE CONTINUED.)